



Professional Qualification in COMPUTER ENGINEERING Level 4 Diploma

UNIT 4 – NETWORKING TECHNOLOGY

Question 1

- a) **Explain** the role of the data-link layer of the OSI model. (4 marks)
- b) **Compare** the switching **and** bridging topologies. (12 marks)
- c) Referring to your answer to Question 1b, **suggest** which layers **EACH** topology operates on. **Justify** your answer. (4 marks)

Question 2

- a) **Outline** the function of an IP address. (4 marks)
- b) **Compare THREE** key differences between IPv4 **and** IPv6. (12 marks)
- c) Referring to your answer to Question 2b, **suggest** which is **most** appropriate for a very large network. **Justify** your answer. (4 marks)

Question 3

- a) **Explain** the purpose of the transport layer of the OSI model. (4 marks)
- b) **Compare and contrast** the advantages **and** disadvantages of UDP. (12 marks)
- c) Referring to your answer to Question 3b, **recommend** an application for which UDP is the **most** suitable protocol. **Justify** your answer. (4 marks)

Question 4

- a) **Explain** the role of the presentation layer of the OSI model. (4 marks)
- b) **Illustrate** how a packet containing ASCII-coded data would be transformed into UTF16-coded data. (12 marks)
- c) Referring to your answer to Question 4b, **suggest why** the presentation layer is not present in the TCP/IP model. **Justify** your answer. (4 marks)

Question 5

- a) **State** the purpose of software such as Wireshark and TCP Dump. (2 marks)
- b) Referring to your answer to Question 5a, **distinguish** between benevolent **and** malicious uses of such software. (9 marks)
- c) Referring to your answer to Question 5b, **suggest how** malicious uses of such software can be mitigated. **Justify** your answer. (9 marks)

March 2015